REMARKS

Claims 1, 3 - 5, 8, 10, 12 - 14, 17, 19, 21 - 23, and 26 have been amended. Claims 9, 18, and 27 have been cancelled from the application without prejudice. Claims 28 - 33 have been added. No new matter has been introduced with these amendments or added claims, which are supported in the specification as originally filed. Claims 1 - 8, 10 - 17, 19 - 26, and 28 - 33 are now in the application.

Independent Claims 1, 10, and 19 have been amended to more clearly specify how information is exchanged in this embodiment. In addition, limitations of now-cancelled Claims 9, 18, and 27 have been incorporated into these independent claims, which are (now) directed toward the embodiment illustrated by **Fig. 5** of Applicants' specification. (As originally submitted, these independent claims were intended to cover both embodiments illustrated by **Figs. 4** and **5**.) Dependent Claims 3 - 5, 12 - 14, and 21 - 23 have been amended to remove multiple dependency. Claims 8, 17, and 26 have been rewritten in independent form, including limitations of the claims from which they originally depended. These claims correspond to the embodiment illustrated by **Fig. 4** of Applicants' specification. (Added Claim 33 also corresponds to the embodiment illustrated in **Fig. 4**.) Added Claims 28 - 32 specify limitations analogous to those in Claims 20 - 24, but depend from the newly-created independent Claim 26. Thus, it can be seen that no new matter has been introduced.

I. Objection to the Drawings

Paragraph 1 of the Office Action dated October 9, 2003 (hereinafter, "the Office Action") states that the drawings are objected to because of unused referenced numbers in Fig. 6. A replacement drawing addressing this objection is provided herewith, as discussed above in "Amendments to the Drawings", and the Examiner is therefore respectfully requested to withdraw this objection.

II. Rejection Under 35 U.S.C. §112, second paragraph

Paragraphs 2 - 3 of the Office Action state that Claims 8 - 9, 17 - 18, and 26 - 27 are rejected under 35 U.S.C. §112, second paragraph as being indefinite for failing to point out and distinctly claim the subject matter which Applicants regard as their invention. In particular, paragraph 3 states that the term "said generated passticket" has insufficient antecedent basis. Claims 9, 18, and 27 have been cancelled, and the limitations of Claims 8, 17, and 26 have been rewritten, thereby rendering this rejection moot. The Examiner is therefore respectfully requested to withdraw this §112 rejection.

III. Rejection Under 35 U.S.C. §103(a)

Paragraph 5 of the Office Action states that Claims 1, 7, 9 - 10, 16, 18 - 19, 25, and 27 are rejected under 35 U.S.C. §103(a) as being unpatentable over U. S. Patent 5,241,594 to Kung in view of U. S. Patent 6,401,211 to Brezak et al. and U. S. Patent Application 09/159,514 (publication US 2003/0041263 A1) to Devine et al. Paragraph 6 of the Office Action states that

Claims 3 - 5, 12 - 14, and 21 - 23 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kung in view of Brezak and Devine, and further in view of U. S. Patent 5,754,830 to Butts et al. Paragraph 7 of the Office Action states that Claims 6, 15, and 24 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kung in view of Brezak, Devine, Butts, and further in view of U. S. Patent 5,592,553 to Guski et al. Paragraph 8 of the Office Action states that Claims 2, 11, and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kung in view of Brezak and Devine and further in view of "Applied Cryptography", pages 574 - 597, by Bruce Schneier. Paragraph 9 of the Office Action states that Claims 3 - 5, 12 - 14, and 21 - 23 are also rejected under 35 U.S.C. §103(a) as being unpatentable over Kung in view of Brezak and Devine, and further in view of Schneier and Butts. Paragraph 10 of the Office Action states that Claims 6, 15, and 24 are also rejected under 35 U.S.C. §103(a) as being unpatentable over Kung in view of Brezak and Devine, and further in view of Schneier, Butts, and Guski. Finally, paragraph 11 of the Office Action states that Claims 8, 17, and 26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kung in view of Brezak and Devine, and further in view of IBM Technical Disclosure Bulletin NN9204459. Claims 9, 18, and 27 have been cancelled, rendering the rejection moot as to those claims. The §103 rejections are respectfully traversed with regard to the remaining claims.

Kung teaches a centralized approach and a distributed approach, each of which will now be described. Differences between each of these approaches and the techniques of Applicants' invention will also be described.

In a centralized approach, Kung teaches a user workstation having a "multiple logon protocol" (hereinafter, "MLP") added to its TCP-IP stack. See, for example, element **16** of **Fig. 1**. The corresponding text in col. 4, lines 13 - 18 states that this MLP is "'inserted' between the user application **14** and the TCP-IP stack **15**" of the user workstation **11**, and that this MLP "forms part of the TCP-IP stack **15**". By modifying the TCP-IP stack on the user workstation, the applications executing on the user workstation, which make use of the TCP-IP stack for communications, do not have to be modified (as discussed in col. 4, lines 18 - 19).

Kung further teaches that this centralized model uses a "multiple logon server" (hereinafter, "MLS"), which is depicted as element **12** in **Fig. 1** and in **Fig. 3**. As can be seen in **Fig. 3**, this MLS **12** does not communicate with the remote host computer **13** during the user logon process depicted therein. Instead, MLS **12** interacts with the user workstation **11**.

In particular, MLS **12** checks to see if the user has already been connected (step **43**), responsive to receiving an authorization request from workstation **11**, and if so, returns authorization information for the user (step **44**). Following receipt of this authorization information (step **45**), the MLP executing at the workstation sends the user's ID and password to the remote host computer **13** (step **49**) in response to receiving a request therefrom (step **48**). The workstation **11** and remote host computer **13** then establish a session (steps **50** and **51**) and begin to communicate. These various steps are described in col. 4, line 62 - col. 5, line 18.

This is distinct from Applicants' claimed invention in a number of ways. For example, a server (rather than the client) is responsible for communicating with the remote host in Applicants' invention. See, for example, flows **455** of **Fig. 4** and **550** of **Fig. 5**. In the scenario of **Fig. 5**, the host's request for log-on information is not received at the client, in contrast to Kung's approach. (Applicants' approach therefore enables an existing Web browser to be used. Kung's approach, on the other hand, would require -- *inter alia* -- a different protocol stack to be added to the client machine.) Furthermore, the server machine of Applicants' invention is modifying a client-provided log-on message in the scenario of **Fig. 4** (which corresponds to independent Claims 8, 17, and 26, as well as newly-added independent Claim 33), and Kung has no counterpart functionality.

Returning to the discussion of Kung's centralized approach, if it is determined at step **43** that the user has not already connected, then at step **52** an authentication request is sent from MLS **12** to the workstation **11**. Upon receiving this message at the workstation, the workstation-resident MLP **16** gets the user's ID and password, and sends those to the MLS **12**. See steps **52**, **53**, and **54** of **Fig. 3**, as well as the corresponding text in col. 5, lines 19 - 26. Kung teaches that the MLS **12** then sends another request to the workstation **11** (step **55**), which the workstation-resident MLP **16** evaluates to determine whether it will accept (step **56**). This approach also differs from Applicants' claimed invention, where the various entities do not exchange this type of messages in this way.

In a distributed approach, Kung teaches that each computer in the network stores the password files for all clients. See, for example, col. 2, line 67 - col. 3, line 2 and col. 6, lines 8 - 9, where this is discussed. This approach is not feasible in a modern-day environment such as the Internet, and Applicants' claimed invention does not suffer from this limitation. Instead, Applicants' invention leverages a host access security system, which has responsibility for the access credentials of authorized users.

In Kung's distributed approach, a secure user workstation **11** is required. See, for example, col. 5, line 43 and col. 6, lines 28 - 30, as well as the text associated with element **11** in Fig. 4. Applicants' claimed invention does not require a secure computer. Furthermore, Kung's distributed approach "eliminates the multiple logon server **12**" (col. 5, lines 40 - 41), and therefore uses only the workstation **11** and remote computer **13** as communicating entities. This approach therefore does not correspond to Applicants' claimed invention, which uses additional communicating entities.

Kung also teaches that a "specific sequence of events [is] required to implement" his approach. See col. 6, lines 15 - 17. This teaches away from combining other references, which would alter the "specific sequence of [required] events".

Paragraph 5 of the Office Action, pages 3 - 6, admits that Kung does not teach a number of the limitations of Applicants' independent claims, and cites Brezak and Devine as teaching

those limitations. Applicants respectfully disagree that the references can be combined to yield their claimed invention, and that a proper motivation for combining has been demonstrated. In particular, page 6 of the Office Action states it would have been obvious to one of skill in the art to combine the digital certificates of Devine with Kung and Brezak because "it would have added a more secure authentication algorithm". Applicants fail to see any reason why a "more secure authentication algorithm" would result.

More importantly, it is not as simple as saying that one can introduce digital certificates, when (as in Applicants' claimed invention) the environment includes message flows exchanged with legacy host systems. It is well known in the art that modifying legacy systems is difficult, if not impossible: typically, the software running on the legacy system uses an "outdated" programming language for which expertise is no longer readily available, and in many cases, the source code is not available at all.

In view of the difficulties inherent in this environment, Applicants have invented techniques that enable using information from digital certificates, along with message flows used by legacy host systems. As a result, no change is needed at the legacy host system. An intermediate entity is used, and this intermediate entity (referred to in Applicants' claims as a "server machine" or "server") communicates with the legacy host system using a legacy host communication protocol while also communicating with clients that are adapted for sending digital certificates.

Applicants note that the paragraph cited in the Office Action as teaching use of digital certificates in Devine (paragraph **88** on Devine's page 7) pertains to establishing a secure session between a client and a server. This functionality appears in Applicants' **Figs. 4** and **5** at message flows **420** and **520**, respectively. In contrast to Applicants' claimed invention, there is no discussion in Devine of subsequently using the digital certificate, or information contained therein, to log the user on to a secure legacy host application or system (where legacy systems are referred to in Devine as "back end" or "third tier" entities; see paragraph **0052**). In particular, paragraph **0150** of Devine, where interactions between application proxies and the back-end servers are discussed, contains no suggestion whatsoever that these interactions include information obtained from, or through use of, a digital certificate.

In view of the above, Applicants respectfully submit that their independent claims are patentable over the cited references, whether taken singly or in combination. Furthermore, Applicants respectfully submit that one of skill in the art would not be motivated to attempt the combination, and that such combination (if, *arguendo*, such combination is possible) fails to yield the limitations of their independent claims. Applicants also respectfully submit that their dependent claims are deemed patentable over the references by virtue of the novelty of the independent claims. Accordingly, the Examiner is respectfully requested to withdraw the §103 rejection of all claims as currently presented.

IV. Conclusion

Applicants respectfully request reconsideration of the pending rejected claims, withdrawal of all presently outstanding objections and rejections, and allowance of all claims at an early date.

Respectfully submitted,

Marcia L. Doubet

Marcia L. Doubet
Attorney for Applicants
Reg. Nbr. 40,999

Customer Nbr. 25260
Phone: 407-343-7586
Fax: 407-343-7587

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